

D 9081

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Name.....

Reg. No.....

THIRD SEMESTER M.Sc. DEGREE EXAMINATION, NOVEMBER 2010

General Biotechnology

GBT 212—BIOPROCESS TECHNOLOGY

Time : Three Hours

Maximum : 80 Marks

Section A

Answer any two questions.

Each question carries 10 marks.

1. How to screen and pick up industrially useful micro-organism ? Discuss the analysis involved in each level of screening.
2. What are the desired qualities of large scale medium ? How to formulate a large scale medium ?
3. How glutamic acid is produced industrially ?

(2 x 10 = 20 marks)

Section B

Answer any ten questions.

Each question carries 5 marks.

4. What are the major classes of fermenters ? Indicate their mode of operation with typical examples.
5. Explain a bioreactor where the organism involved is immobilized.
6. What is "solid state fermentation" ? Indicate its applications.
7. What are the microbes suitable for citric acid production ? How to recover the product ?
8. What is the downstream process involved in penicillin production ?
9. How to treat the effluent originating from alcohol distilleries ?
10. How to measure and control physical parameters involved in the process of fermentation ?
11. What are Photobioreactors ? Narrate the design of a closed photobioreactor.
12. Differentiate ion-current and counter-current extraction systems.
13. Briefly any four system of agitation performed in a fermenter.
14. How the large scale media are sterilised using heat exchangers ?
15. How continuous filtration is achieved using rotary drum vacuum filter ?

(10 x 5 = 50 marks)

Turn over

Section C

*Answer **all** questions.*

Each question carries 2 marks.

16. Define "fermentation".
17. What is the role of liquid nitrogen in culture preservation ?
18. Mention any *four* culture collections maintaining industrial microbes.
19. How *Sprulina* is used as a health food ?
20. What are fed batch cultures ?

(5 x 2 = 10 marks`